VARIOVAC

Metal detection

Conveyer belt systems HQ

Control unit M-Pulse2

Software package UniControl

know-how
in
metal detection

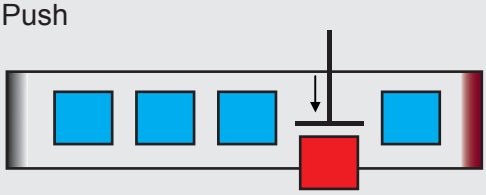
Application

The conveyor belts HQ in combination with our metal detectors of the BD-HD series result in a high-sensitivity and highly reliable device for the detection and the separation of metal. All devices are manufactured individually according to your requirements. The construction as well as the manufacturing of the HQ series are completely realised in our headquarters. Due to this fact and to our expertise we provide for the optimum solution for each of your assignments. Our plants are used in all branches of industry. Particularly they serve for the inspection of singular goods or bulk material. The robust design in stainless steel stands for longevity and comes up to strict hygienic standards.

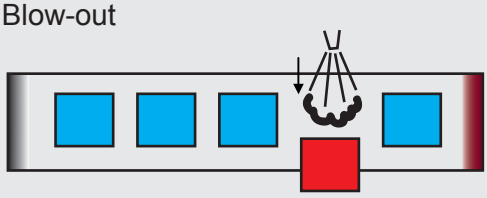
Function

The conveyor belt leads the test material trough the metal detector. The detector scans the products and analyses the data in real-time. Powerful processors allow a high-precision fade-out of the product effect. Furthermore interfering influences as for example vibrations can effectively be eliminated. Even at high velocities the device works reliably and precisely. If metal is detected in the test material, there are different possibilities for the separation of the contamination. The easiest way is to get the conveyor belt stopped automatically and to remove the contamination manually. After that the conveyor belt restarts at the push of a button. For highly automated manufacturing plants we recommend a separating system that works automatically. Thereby the metallic contamination is detected precisely by a light barrier. Thus the position of the contamination in the product stream is clear and the metallic residua can be separated. If there are several products in the sensor range at the moment of the detection of metal, the high-performance technology allows the automatic exclusion of all questionable products. There are different principles for separating the contamination:

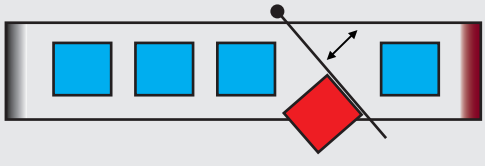
1. Push



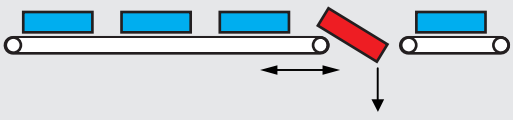
2. Blow-out



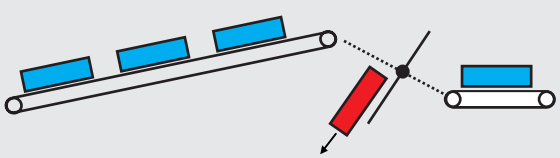
3. Rotary arm



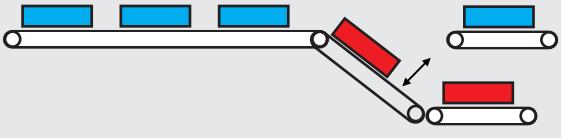
4. Telescopic conveyor



5. Drop flap



6. Fold-away conveyor



Specific characteristics

- speed-controlled, high-capacity engine
- high-performance fade-out of product effect
- various separating attachments available
- belt available in different materials and designs
- special designs (curved conveyors, elevating conveyors etc.)
- height adjustable and optionally mobile
- clean and solid treatment
- customised designs

Equipment

All conveying plants are serially equipped with an adjustable engine. The conveyor belt, an open link chain conveyor, is even and without curves. It possessed height adjustable stands (±50 mm) without ear. The power switch, the emergency stop button and the start/stop button are serially integrated. The entire frame construction as well as the switch cabinet are made of stainless steel and are fully capsuled (IP 65). Information concerning the sensitivity are given in the data sheets of the BD-HD series. Equipment for the control electronics you will find in the data sheets of the electronics M-PULSE or M-PULSE2.

Accessories & options

Next to separating filters there are many other additional components for our conveyor plants. If you have any other requests going beyond the list shown below, please contact our sales department.

Designation
safe for contaminated products
design: elevating conveyor
design: curved conveyor
belt material - link chain closed
belt material - polyurethan
design: belt conveyor
signal light - alarm for metal detection
signal light - performance test
signal transmitter - alarm for metal detection
side guidance fixed
side guidance adjustable
fill level control for safe
compressed air monitoring
ejection monitoring
protection class IP67
guide pulley with fixation
stands with ears
touch panel

Control unit M-Pulse2

Application

The control and evaluation electronics M-Pulse2 combines highest metal sensitivity with reliability and an easy handling. Due to the latest electronics in it´s inside the M-Pulse2 provides an effecient fade-out of the product effect and adapting digital filters. A variety of connectivity and expansion options allow great flexibility for the control of perpheral units or other equipment as well as for processing commands. The comprehensive user management and documentation of all data make the M-Pulse2 to first choice in quality control - for example in the food industry.

Function

Modern receiver technology paired with effective signal evaluation collects all sensor data with the highest precision. In the process, the resolution of the data logging with up to 31 bits is an absolute first. Completely maintenance-free operation by means of automatic drift compensation and a continuous internal self-diagnosis are standard features. All sensors from the Pulsotronic product range are supported. For special applications, sensors with multiple-frequency technology can also be equipped.

A quartz accurate signal generation and the modern receiver technology completely replace calibration measures. Downtimes and production losses are a thing of the past.

A multitude of different interfaces enable seamless integration into any production environment. Like the previous version, the M-Pulse2 it is also available with Ethernet. In the process, all events can be logged and evaluated in accordance with HACCP, ISO or IFS.

Equipment & specific characteristics

User friendless

The use of a colour TFT display with touch makes the operation of the device very easy. A familiar user interface with intuitive input elements will quickly lead even inexperienced personnel to their destination. For the best possible user convenience, the language settings are continuously adapted on the basis of the user settings. In this manner, every user can individually select his/her language theme.

QuickLearn

In addition to the familiar possibilities of compensating for the inherent effects of products, the M-Pulse2 offers a safe and fast way of learning these effects. With just a turn of the hand, this procedure can be performed in a matter of seconds, thanks to QuickLearn.

Digitale signal analysis

The signal evaluation is already initiated on the electronic detection of the signals by the digital measurement receiver. This is recorded in real time and with the highest 31-bit precision, which is a novelty and unique to the entire market of metal detection. The reprocessing of the signals with a fast multiprocessor system is a standard feature which offers powerful algorithms for fault signal and product effect fade-out. For special applications, changes in the product effect can be updated by means of product tracking.

Networking

The device has a 10/100 MBit Ethernet interface as an integral component. It can be used to transfer all device and process data to a PC. An internal memory buffers the last 10,000 messages, if the network is offline.
The device also has its own HTTP server. In the process, the device can be managed without additional software! In particular, that means the possibility of remote maintenance and transmission of updates.
An additional serial interface and multiple IO ports offer the possibility the control to fully integrate in any automation environment.

Modern electronics

A number of innovations, addition to the multiple-frequency technology, have been implemented in the electronics of the M-Pulse2. Special emphasis was placed on interference resistance (EMC) and stability. Quartz-based signal generators eliminate the phenomena of drift and ageing. The multi-processor system can even be updated at all times using remote maintenance. The entire electronic system has a modular design and can be modified to meet elevated requirements or a change in tasks.
Despite the improved scope of output, the power consumption is around just 15 watts (typical).

Technical data

Mechanical data	
Dimensions	B x H x T: 250 x 330 x 160 mm
Weigth	ca. 4.600 g
Handling	
Display & Keyboard	320 x 240 TFT (65.536 colors) incl. touch + multifunctions- and arrow keys
Conditions of use	
Storage temperature	-10°C .. 60°C
Operating temperature	0°C .. 50°C
Protection class	IP 65
Supply voltage	85 - 264 VAC; 50/60 Hz alternativ: 24 VDC
Power consumption	typ. 15 W; max. 40 W
Electrical connection	3 m cable; L1,N,PE; 1,5 mm²
Sensitivity	(see sensor or device)
Interfaces	
Sensor - transmitter	50 Ohm; overload- & short-circuit proof (50 .. 1.000 kHz)
Sensor - receiver	HDC-IQ - digital receiver (31 bit) with sensor-readjustment and monitoring multi-frequency technology (max. 4 frequency)
Digital inputs	8 inputs.; optical isolated; V_{IL} = -5 .. 1,5V; V_{IH} = 6 .. 50V multifunction-key (function selectable) motor error ejection and level guard product trigger external start; external enable; external error
Analog inputs	1 input.; 0 .. 10 V; resolution 10 bit speed
Digital outputs	7 outputs.; PNP-open collector; max. 1.000 mA; overload- & short circuit proof 2x device state, 2x ejection, 2x signal, belt run
Analog outputs	1 output.; 0 ..10 V; resolution 12 bit; max. 10 mA over- & short circuit proof desired speed
Relay	2x change-over contact; max. 230 V / 2 A
Network	Ethernet; RJ45; 10/100 Mbit
Serial interface	RS232 (all types and formats)

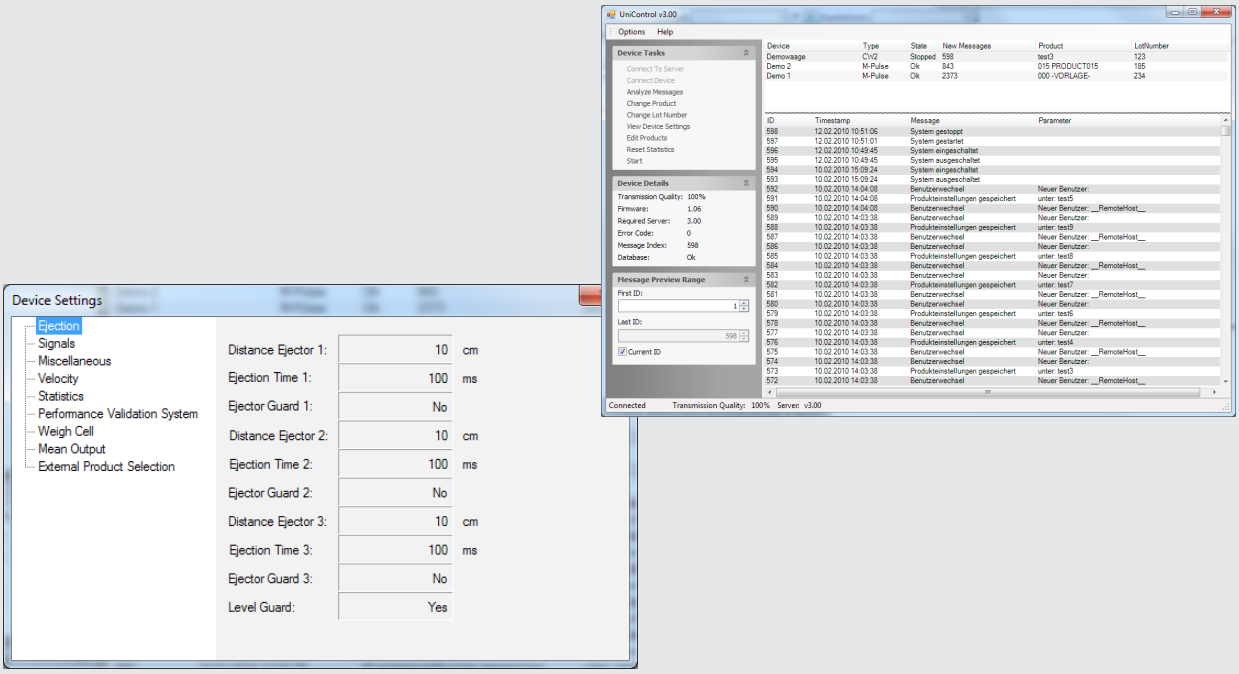
Order information & accessories

Designation	order number
M-Pulse2 control unit (Hygenic Design)	16730000035
M-Pulse2 control unit (standard)	16730000037
M-Pulse connecting kit Ethernet	with 10 m cable: 08900000025
Software UniControl	08900200006
OPC-Server UA for software UniControl	08900200004
additional user license for software UniControl	08900200002

Beyond the components listed above many other optional components are available depending on the type of device. Exact informations is given in the particular data sheets.

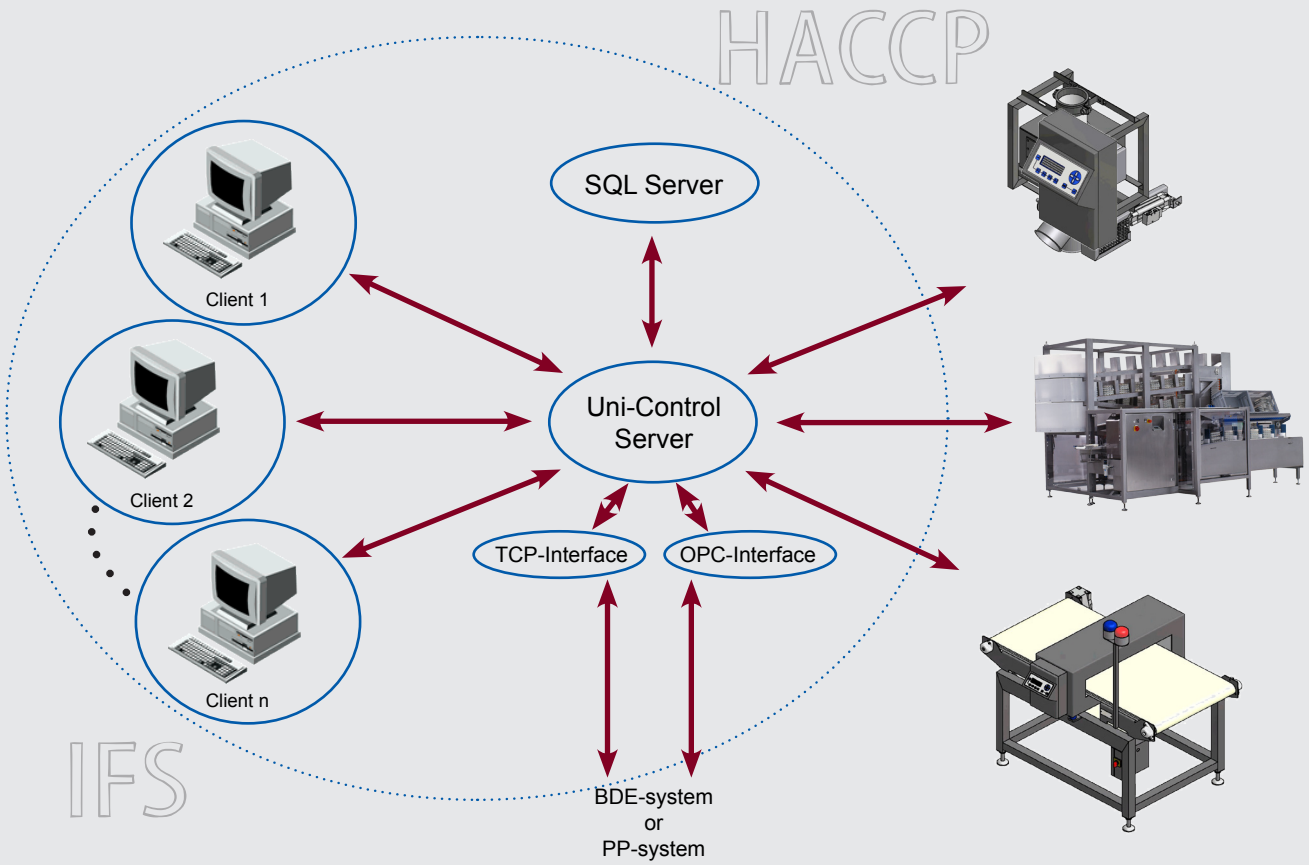
Software UniControl

The modern network concept of the new M-Pulse2 metal detectors is entirely Ethernet based (optional WLAN). The UniControl software packages handles the archiving and evaluation of all recorded data. These are quickly and securely saved on an SQL server. In addition, device settings can be displayed and changed from the PC. Thanks to the versatility of the UniControl, all other devices, such a Checkweigher, are also supported. The multi-user architecture enables access to these functions and data for multiple users from anywhere in your network at the same time!
Feel free to contact us for a free demo version.



Multi-user system UniControl

- **centralized data management and control**
- **data export for additional processing or for adding to the BDE system**
- **connection to the BDE or PP system via an integrated OPC server**

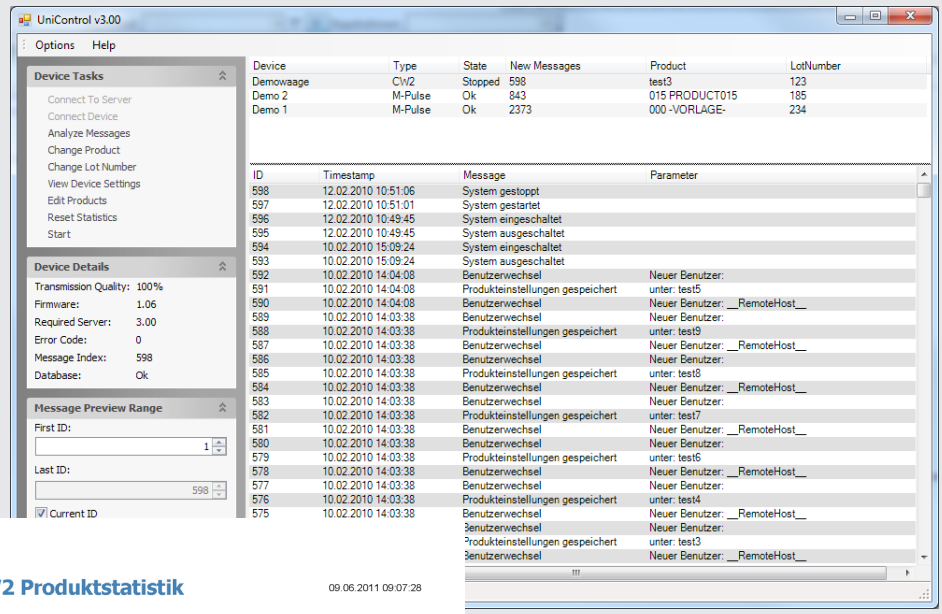


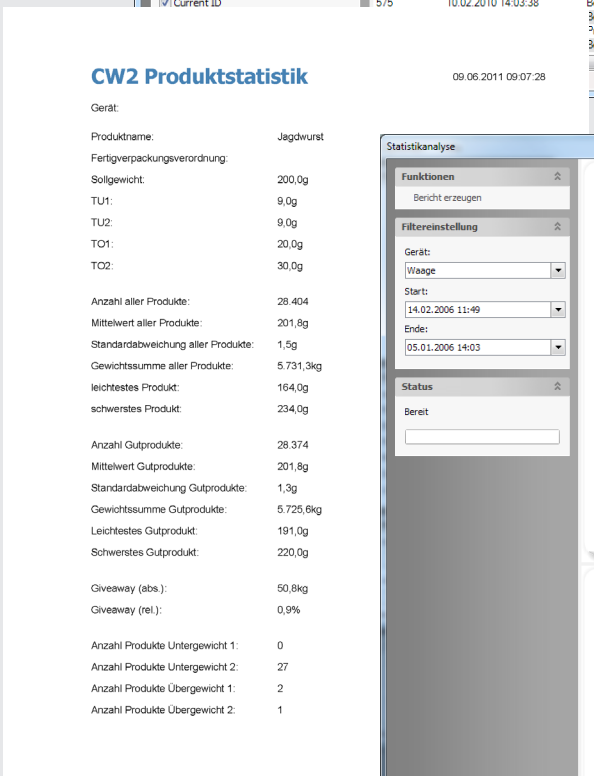
Functions

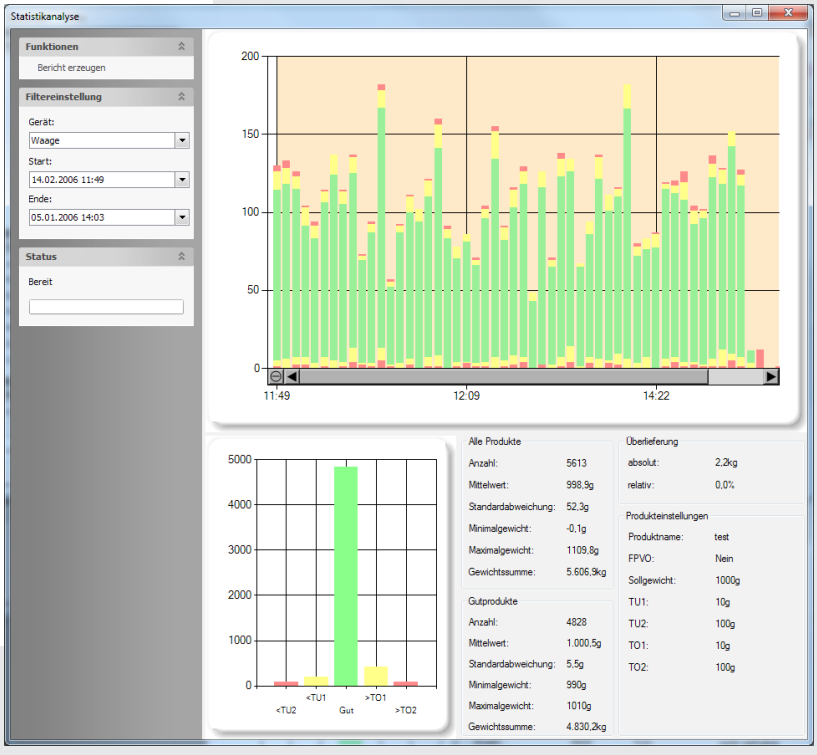
- central data capture and analysis
- any number of users
- data stored in an SQL server database
- connection to BDE or PP system
- networking via WLAN or ethernet
- software package brings together all functions for logging, device diagnostics, device for
- management and data backup
- generation of reports according to HACCP / IFS
- Uni-Control server implemented as a Windows service
- enhanced statistics function

Highlights

- OPC Server
- Statistics module
- Remote maintenance
- Integration from external devices
- Multi-user system (unlimited user)







Device Registration Sheet

flash lamp:

- ❑ not
- ❑ red or blue
- ❑ red and blue

control unit:

- ❑ M-Pulse2

dimensions BD (sensor):

width: .....

height: .....

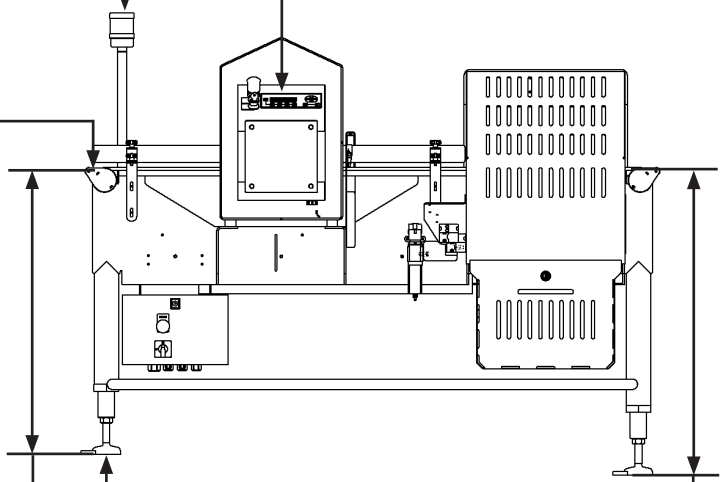
shaft diameter:

.....

belt:

- ❑ belt opened
- ❑ PU
- ❑ other

.....



running in height

..... ±.....

- ❑ stand feet (standard)
- ❑ stand feet (hygiene design)
- ❑ guide roller

running out height

..... ±.....

belt speed:

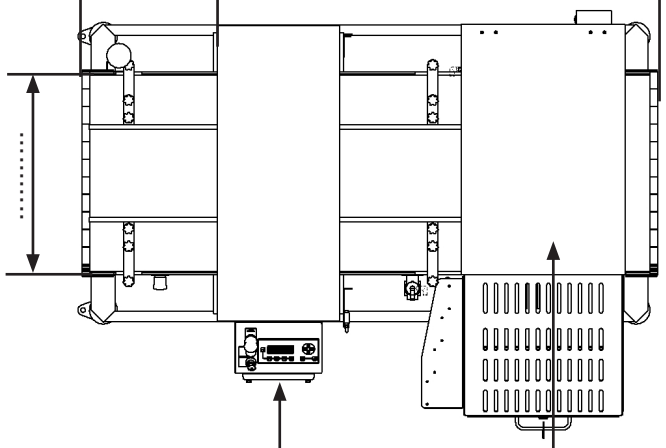
..... m/min

..... pulse

..... product distance

length: .....(over all)

.....(detector not centered)



belt width

.....

Pusher (ejector):

- ❑ compressed air
- ❑ linear
- ❑ flip arm
- ❑ teleskopic conveyor
- ❑ belt stop

handling side conveying direction:

- ❑ left
- ❑ right

cover over pusher:

- ❑ plastic
- ❑ stainless steel

safe:

- ❑ safe lockable
- ❑ chutes
- ❑ location for E1 / E2 case
- ❑ ejection monitoring
- ❑ fill level control

networking:

- ❑ Ethernet - M-Pulse2
- ❑ cable length .....m
- ❑ data management software
  number of workplace licenses .....

miscellaneos:

- ❑ beeper
- ❑ encoders
- ❑ washable
  (protection class IP .....)
- ❑ ATEX
  (on inquiry)

user software:

- ❑ german
- ❑ english
- ❑ .....
- ❑ .....

product:

length: .....

width: .....

height: .....

weight: .....

product temperature: .....

product distance: .....

number of product/min: .....

speed: .....

product sample: ❑ yes

❑ no

product responsivity desired:

FE ..... NFE ..... VA .....

Due to interfering material and production influences, incorrect settings and erroneous installation the reachable sensitivity can be lesser than, the values given above. Please follow the instructions in the manual and let the initial operation be done by one of our service technicans.

VARIOVAC PS SystemPack GmbH
Ernst-Litfaß-Str. 3 und 5
19246 Zarrentin am Schaalsee
Tel.: +49-38851-823-0
www.variovac.de